

USSR

VAVILOV, V. S., KLYAVA, YA. G., KOSHELEV, O. G., TYAPKINA, N. D., Moscow
State University imeni M. V. Lomonosov

UDC 621.315.592

"Effect of Temperature and Superhigh Frequency on the Conductivity of Germanium with Beryllium at Helium Temperatures"

Leningrad, *Fizika i Tekhnika Poluprovodnikov*, Vol 4, No 9, Sep 70, pp 1683-1688

Abstract: The authors investigate the temperature dependence of conductivity (σ) and the effect of superhigh frequency ($\lambda = 3$ cm) on σ in p-type germanium doped with beryllium and phosphorus at 1.45-4.2°K. In this region the relationship $\sigma(T)$ may be approximated by the formula $\sigma = \sigma_0 \exp(-\epsilon/kT)$. Both ϵ and σ_0 are studied as functions of $r_A = [3/4\pi(2N_{Be} - N_P)]^{1/3}$ (N_{Be} and N_P are the concentrations of beryllium and phosphorus). With a reduction in r_A , ϵ decreases, disappearing when $r_A = 40-50$ Å. Within the limits of measurement precision, the relationship $\sigma_0(r_A)$ may be represented by the expression $\sigma_0 = C \exp(-2r_A/a_2)$, where $C \approx 3 \cdot 10^3 \Omega^{-1} \cdot \text{cm}^{-1}$, and $a_2 \approx 17$ Å. An increase in $\sigma(\Delta\sigma)$ was observed which was proportional to the SHF power. In the linear region of voltage-current characteristics, $\Delta\sigma$ is independent of the amplitude of the DC field, and $\Delta\sigma/\sigma$ changes by only an order of magnitude with a change in σ by seven orders of magnitude. The relationship

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VAVILOV, V. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1683-1688

between $\Delta\sigma$ and the SHF modulation frequency is studied. In low-resistance specimens, $\Delta\sigma$ decreases by half when $f = 30$ kHz. This inertness indicates that $\Delta\sigma$ is chiefly bolometric in nature. The authors thank V. L. Bonch-Bruyevich and N. A. Penin for interest in the work and for discussing it, T. Yu. Lisovskaya for assisting with the experiment, and V. Ye. Kuvshinova for preparing the specimens and carrying out the Hall measurements.

1/2 025
TITLE--PROPERTIES OF OXIDE FILMS ON SILICON STUDIED BY A GAS ETCHING
METHOD -U-
AUTHOR-(02)-TYAPKINA, V.V., MOGILEVTSEV, P.K.
COUNTRY OF INFO--USSR
SOURCE--IZV AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 214-18
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--SILICON, METAL OXIDATION, ELECTRON DIFFRACTION, METAL ETCHING,
OXIDE FILM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0823
CIRC ACCESSION NO--AP0118003
STEP NO--UR/0363/70/006/002/0214/0218
UNCLASSIFIED

2/2 025
 CIRC ACCESSION NO--AP0118003 UNCLASSIFIED
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SI SAMPLES OXIDIZED BY 2
 TECHNIQUES WERE EXAMD. IN THE 1ST CASE, THE SI WAS OXIDIZED IN WATER
 VAPOR UNDER PRESSURE. IN THE 2ND CASE, THE OXIDE FILMS WERE PREPD. BY
 SUCCESSIVE OXID. OF THE SAMPLES IN DRY, MOIST, AND AGAIN DRY O. FILMS
 PREPD. BY THE LATTER METHOD ARE PRESENTED FOR THE THICKNESS AND
 THE RELATIVE COMPACTNESS OF THE OXIDE FILMS. THE REACTION WAS
 OBTAINED BY THE GAS ETCHING METHOD AT A F OR HF PRESSURE OF 100 MM HG. THE
 CONTROLLED BY OBSERVING THE WT. CHANGE IN THE SAMPLE. THE GAS ETCHING,
 WAS PERFORMED AT ROOM TEMP. AT A F OR HF PRESSURE OF 100 MM HG. THE
 STATE OF THE SURFACE OF THE SAMPLES WAS CONTROLLED BY ELECTRON
 DIFFRACTION AND METALLOGRAPHIC METHODS. THE ELECTRON DIFFRACTION
 PATTERNS OF OXIDIZED SI CONTAIN ONLY THE DIFFUSED HALOS CHARACTERISTIC
 OF AN AMORPHOUS STRUCTURE. AFTER THE REMOVAL OF THE OXIDE FILM BY
 ANHYD. HF, KIKUCHI LINES AND BANDS CHARACTERISTIC OF THE INITIAL FACE OF
 THE CRYSTAL WERE OBSD. ON ELECTRON DIFFRACTION PATTERNS. REPEATED
 REPRODUCTION OF THESE PATTERNS SHOWED THAT THE COMPLETENESS OF REMOVAL
 OF THE OXIDE AS A RESULT OF GAS ETCHING CAN BE CONTROLLED QUITE RELIABLY
 BY ELECTRON DIFFRACTION. THE D. OF THE AMORPHOUS SiO_2 WAS TAKEN TO
 BE 2.2 G-CM $Primes^3$. THE INTERACTION REACTION BETWEEN THE OXIDE FILM AND
 ANHYD. HF WAS STUDIED. THE ETCHING RATE DOES NOT REMAIN CONST. DURING
 THE REACTION. THE INCREASE IN THE RATE AT THE EARLY ETCHING STAGE IS
 APPARENTLY AUTOCATALYTIC. THE MAIN MASS OF THE FILM ETCHES AWAY AT
 ALMOST A CONST. RATE. THE COMPACTNESS AND THE MICROSTRUCTURE OF THE
 FILMS OBTAINED WERE ALSO STUDIED.
 MOSCOW, USSR.

UNCLASSIFIED

PROCESSING DATE--16OCT70
 FACILITY: INST. FIZ. KHIM.

USSR

UDC 548.4

TYAPUNINA, N. A., PASHCHENKO, T. N., ZINENKOVA, G. M., Moscow State University
imeni M. V. Lomonosov

"Grids of Dislocations Formed During Growth and Annealing in Base Plane of
Zinc Single Crystals"

Moscow, Kristallografiya, Vol 18, No 2, Mar-Apr 73, pp 418-420.

Abstract: Primary attention in this work is given to the study of the nature of the dislocations and determination both of Burger's vectors b and direction vectors d of segments of dislocation grids. Studies were performed using a GEM-100V electron microscope at 100 kv accelerator voltage. Analysis of the pictures produced showed that the dislocation grids consist mainly of mixed dislocations. Over 20 grids were studied and in all cases it was found that the orientation of segments of dislocations was near edge orientation. This fact might be related to the process of preparation of specimens, since dislocation structures of helical segments might easily break down in the thin foil due to transverse slipping, while nonconservative motion is required for projection of edge segments from the plane of the grid.

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TYARNO, YU. A., LAYDRA, P. O. and LYME, YA. N.

UDC 539.3

"Experimental Investigations of Double-Curvature Slanting Shells with Supported Edge Elements"

Tallin, Tr. Tallin. politekhn. in-ta (Transactions of the Tallin Polytechnic Institute), No 333, 1972, pp 57-66 (English abstract) (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4V233)

Translation: Slanting shells of positive Gaussian curvature with sides at right angles are considered. The longitudinal edge elements of the shell were supported during the experiment. The experimental investigations were conducted on a series of models (120x50cm) of a reinforced cement solution 1:25. Stress-strain curves of internal forces, transport values and schemes of crack formation are presented. The collapse of all models was a result of the formation of a plastic articulation of positive bending moments at the edge element with a load greater than 1400-1800 kg/m². (Author's abstract)

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Physiology

UDC 612.766.2:[612.123+612.124]

TYAVOKIN, V. V., Chair of Hospital Therapy, Leningrad Pediatric Medical Institute, and Department of General Physiology imeni K. M. Bykova, Institute of Experimental Medicine, Academy of Medical Sciences, Leningrad

"The Effect of Restricted Muscular Activity (Hypodynamia) on Total Cholesterol and Lipoprotein Levels in the Blood"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1970, pp 34-35

Translation: Ten days after restricting the movements of rabbits, blood cholesterol decreased (from 81 ± 1.43 to 63 ± 7.7 mg%), but then increased sharply after 30 days (to 176 ± 15.08 mg%). Two weeks after restricting the animals' movements, the content of alpha-lipoproteins decreased almost threefold (from 19.97 ± 2.48 to $6.97 \pm 0.82\%$), while that of beta-lipoproteins increased (from 46.23 ± 1.45 to $56.99 \pm 0.5\%$). Total cholesterol and lipoprotein levels were investigated in the blood of rabbits whose movements were sharply restricted, i.e., under conditions that induce atherosclerosis and coronary insufficiency without the injection of exogenous cholesterol.

Procedure

Total blood cholesterol was determined by M. A. Levchenko's method. Paper

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TYAVOKIN, V. V., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1970, pp 34-35

electrophoresis in an EFA-1 was used to investigate the serum lipoproteins. Serum was stained beforehand with Sudan black, and applied in an amount of 0.04 ml to paper strips 3.5 cm wide and 26 cm long. Electrophoresis continued for 4 hours with current of 0.5 ma per cm of strip width at a voltage of 200 v. Quantitative determination of the fractions was done by photocolormetry after elution of the lipoprotein spots with a solution of 20% acetic acid in 80% alcohol.

Results

Total blood cholesterol was determined in 48 rabbits (32 experimental animals and 16 controls). Just before restriction of the animals' movements, serum cholesterol amounted to 81 ± 1.43 mg%. Twenty-four hours later it was 75 ± 8.85 mg% ($P > 0.2$); 5 days later, 89 ± 9.6 mg% ($P > 0.2$); 10 days later, 63 ± 7.7 mg% ($P < 0.015$); 15 days later, 82 ± 9.6 mg%; 30 days later, 176 ± 15.08 mg% ($P < 0.001$); and 140 days later, 161 ± 27.3 mg% ($P < 0.015$). Consequently, 10 days after restriction of the animals' movements, the blood cholesterol level dropped, but it rose substantially after 30 days.

Fluctuations in the average blood cholesterol level during the first two weeks of restricted movements are noteworthy. They are even more striking when the cholesterol level in each experimental animal is considered separately. Before

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TYAVOKIN, V. V., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1970, pp 34-35

the cholesterol level dropped most of the rabbits exhibited a phase of increase, usually 1-5 days after movements were restricted. The level dropped in some of the animals without a preliminary increase phase.

Serum proteins were investigated dynamically in 17 rabbits.

Dynamics of Lipoproteins (in %) in the Serum of Rabbits After Restriction of Movements (M+m)

Index	Before limita- tion of move- ments	7 days after restriction of movements	P	14 days after restriction of movements	P
α -lipoproteins	19.97±2.48	8.21±0.76	< 0.001	6.97±0.82	< 0.001
β -lipoproteins	46.23±1.45	56.99±0.5	< 0.001	53.82±1.75	< 0.004
Lipid residue	33.79±1.87	34.79±1.5	> 0.3	39.21±1.9	< 0.03

It is evident from the table that the content of alpha-lipoproteins decreased almost threefold, while that of beta-lipoproteins increased substantially. No statistically significant increase in the lipid residue occurred until 14 days after restriction of movements.

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030

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--THE INFLUENCE OF RESTRICTED MUSCULAR ACTIVITY, HYPODYNAMIA, ON THE
CONTENT OF TOTAL CHOLESTEROL AND LIPOPROTEINS IN THE BLOOD -U-

AUTHOR--TYAVOKIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 5, PP 34-35

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPODYNAMIA, MUSCLE PHYSIOLOGY, BLOOD CHEMISTRY, LIPOPROTEIN,
CHOLESTEROL

CONTROL MARKING--NO RESTRICTIONS,

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0372

CIRC ACCESSION NO--AP0121060

STEP NO--UR/0219/70/069/005/0034/0035

UNCLASSIFIED

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030

CIRC ACCESSION NO--AP0121060
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. TEN DAYS AFTER MOBILITY RESTRICTION IN RABBITS THERE WAS NOTED A DECREASED LEVEL OF BLOOD SERUM CHOLESTEROL (FROM 81 PLUS OR MINUS 1.43 TO 63 PLUS OR MINUS 7.7 MG PERCENT) AND THIRTY DAYS LATER, A SIGNIFICANT INCREASE (UP TO 176 PLUS OR MINUS 15.08 MG PERCENT). TWO WEEKS AFTER MOBILITY RESTRICTION THE LIPOPROTEIN CONTENT DROPPED ALMOST BY THREE TIMES (FROM 19.97 PLUS OR MINUS 2.48 TO 6.97 PLUS OR MINUS 0.82 PERCENT), WHEREAS THE LEVEL OF BETA LIPOPROTEINS AUGMENTED (FROM 46.23 PLUS OR MINUS 1.45 TO 56.99 PLUS OR MINUS 0.5 PERCENT).
FACILITY: LENINGRAD PEDIATRIC INSTITUTE AND INSTITUTE OF EXPERIMENTAL MEDICINE OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, LENINGRAD.

UNCLASSIFIED

1/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--A FRICTION MACHINE, MTK 1, FOR TESTING FRICTION PARIS IN AN
AGGRESSIVE MEDIUM AT HIGH TEMPERATURES -U-
AUTHOR--(03)-VORONKOV, B.D., DOKUCHAYEV, YU.N., TYAZHELNKOVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM, MEKHAN. MAT., 1970, 6(1), 72-75

DATE PUBLISHED-----70

SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS

TOPIC TAGS--PHYSICS LABORATORY INSTRUMENT, TEST METHOD, WEAR RESISTANCE,
FRICTION TEST/(U)MTKI FRICTION TESTING APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0211

CIRC ACCESSION NO--AP0129467

STEP NO--UR/0369/70/006/001/0072/0075

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0129467

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL DESCRIPTION OF A NEW FRICTION MACHINE DESIGNED FOR STUDYING THE BEHAVIOUR OF FRICTION PAIRS FORMED BETWEEN METALS AND VARIOUS OTHER SUBSTANCES IN A CORROSIVE MEDIUM IS PRESENTED. THIS MACHINE FACILITATES THE DETERMINATION OF WEAR EXPRESSED EITHER AS A CHANGE OF DIMENSIONS OR A WEIGHT LOSS, AND IS SUITABLE FOR BOTH METALLIC AND NON METALLIC SAMPLES IN CORROSIVE MEDIA AT TEMP. UP TO 150DEGREESC. VARIOUS OTHER PHENOMENA (E.G. PHASE CHANGES) ACCOMPANYING THE PROCESS OF FRICTION MAY BE STUDIED AT THE SAME TIME.

UNCLASSIFIED

1/2 010
UNCLASSIFIED
TITLE--EFFECT OF CONDITIONS FOR THE PREPARATION OF A POLY VINYL ALCOHOL
SOLUTION ON THE PROPERTIES OF POLYVINYL BUTYRAL --U-
AUTHOR--(04)--PIASTRO, O.V., YEZHENKOVA, L.L., TYAZHLO, N.I., ROZENBERG,
M.E.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 13-14
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYVINYL ALCOHOL, AQUEOUS SOLUTION, SAPONIFICATION,
ALKYLATION, POLYMER CROSS LINKING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1690
CIRC ACCESSION NO--AP0112684
STEP NO--UR/0191/70/000/002/0013/0014
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 010
CIRC ACCESSION NO--A0112684
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE DISSOLN.
CONDITONS OF POLY(VINYL ALC.) (I) IN H SUB2 O AND THE COOLING OF THE
AQ. SOLN. ON THE PROPERTIES OF POLY(VINYL BUTYRAL) (II) WERE STUDIED.
REPEATED SAPON. OF I SOLNS., USE OF A COOLING AGENT (TEMP. MINUS
3DEGREES) PRIOR TO ACETALATION OF I WITH PRCHO, AND PROLONGED COOLING
INCREASED THE VISCOSITY AND CAUSED FORMATION OF INSOL. II PARTICLES (DUE
TO CROSSLINKING). THUS, CROSSLINKING OF DISSOLVED I NEAR THE COOLED
SURFACE OF THE REACTOR FACILITATED INTERMOL. ACETALATION WHICH, IN TURN,
GAVE INSOL. II PARTICLES.

UNCLASSIFIED

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UDC 619:616.981.42+616.981.51.084:7:636.32/.38

GRYAZIN, V. I., Professor, SAL'NIKOV, F. Ye. (Deceased), PANKRATOV, L. D.,
TYCHINA, G. F., Candidates of Veterinary Sciences, and ZHILA, M. Ye., Junior
Scientific Associate Kazakh Scientific Research Veterinary Institute

"Study of a Combined Vaccine Against Brucellosis and Anthrax in Sheep"

Moscow, Veterinariya, No 7, 1970, pp 38-40

Abstract: A combined dry vaccine against brucellosis and anthrax was prepared from standard strains No. 19 and STI-1 of Brucella and B. anthracis, respectively. Guinea pigs and sheep were immunized with vaccine containing the two antigens in a ratio corresponding to that which would be used in separate administration of monovaccines against the two diseases. Intensive immunity to infection with virulent strains of Br. melitensis and B. anthracis developed, indicating an absence of mutual interference between the two antigens. Administration of the combined vaccine to sheep produced immunity to anthrax that lasted for more than 2 years and immunity to brucellosis for up to 17 months.

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- END -

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--NEW DATA IN THE STUDY OF CHEMO AND OSMORECEPTION -U-
AUTHOR--TYCHININ, V.A. T
COUNTRY OF INFO--USSR
SOURCE--VRACH. DELO 1970, (2), 96-100
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NERVOUS SYSTEM, ELECTROPHYSIOLOGY, OLFACTION, SENSORY
PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/0484 STEP NO--UR/0475/70/000/002/0096/0100
CIRC ACCESSION NO--AP0128053
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128053

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCING 2.86PERCENT OR 5.73PERCENT NA₂CO₃ SOLNS. INTO THE DOG CAROTID ARTERY CAUSED THE SINUS NERVES TO FIRE DISCHARGES IN IRREGULAR GROUPS WITH AMPLITUDES PROPORTIONAL TO THE NA₂CO₃ CONC. EXPTS. WITH 20PERCENT OR 40PERCENT GLUCOSE YIELDED SIMILAR RESULTS, EXCEPT THAT THE GROUPS WERE MORE NUMEROUS AND OF SLIGHTLY GREATER AMPLITUDE. INTRODUCING THE NA₂CO₃ OR GLUCOSE SOLNS. INTO THE LEFT CAROTID ARTERY STIMULATED THE LEFT SINUS NERVE 0.2-0.4 OR 0.2-0.6 SEC, RESP., BEFORE THE RIGHT SINUS NERVE. APPARENTLY THE CHEM. PROPERTIES OF THESE COMPS., AS WELL AS THEIR OSMOTIC PRESSURES IN SOLN., ARE INVOLVED IN THEIR DETECTION BY THE NERVES. FACILITY: KIEV, NAUCH.-ISSLED. INST. OTOLARINGOL., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 612.84/.86

TYCHININ, V. A., Professor, Kiev Scientific Research Institute of Otolaryngology

"New Data in the Study of Chemoreception and Osmoreception"

Kiev, Vrachebnoye Delo, No 2, 1970, pp 96-100

Abstract: A study was made to detect the electrophysiological indications of sinocarotid zone sensitivity of dogs to glucose and sodium chloride as stimuli of different chemical nature, but under conditions of equal osmotic action. Moreover, by administration of hypertonic solutions of glucose and sodium chloride to one and the same animal, either into the right common carotid artery, or into the left one, with synchronous recording of the start of bioelectrical activation of both sinus nerves simultaneously, it was possible to determine the interrelation in functional activity of the pair of reflexogenic zones.

Two series of experiments were conducted and oscillograms indicating the results are presented. One set of four oscillograms shows shifts in the sinus nerve bioelectrical activity upon administration of various percentages of hypertonic solutions of glucose and sodium chloride into the common carotid artery. Analysis of the oscillograms indicated that bioelectrical activation of the sinus nerve upon administration of sodium chloride solutions was delayed as compared

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TYCHININ, V. A., Vrachebnoye Delo, No 2, 1970, pp 96-100

with administrations of glucose. Another set of four oscillograms shows the bioelectrical activity of the right and left sinus nerves upon administration of a 40% glucose solution into the right or left common carotid artery. A third set of four oscillograms shows the bioelectrical activity of the right and left sinus nerves upon administration of a 5.73% sodium chloride solution into the right or left common carotid artery. Results of experiments and analysis of oscillograms determined that the chemically specific characteristics of the stimuli are significant in the genesis of interoceptive functions of the carotid reflexogenic zone during identical "osmotic stimulation" of its receptor apparatuses.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EXPERIENCE WITH CLINICAL USE OF VIBRAMYCIN -U-
AUTHOR--(05)-MIKHNEV, A.L., PTUKHA, R.M., TYDELSKAYA, I.L., KRYLOVA, N.M.,
YAKOVENKO, S.N.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 2, PP 12-16
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BLOOD SERUM, PROTEIN, TETRACYCLINE, INFECTIOUS DISEASE,
SELECTIVE DRUG EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/0454 STEP NO--UR/0475/70/000/002/0012/0016
CIRC ACCESSION NO--AP0100932
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NU--AP0100932

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VIBRAMYCIN (DOXYCYCLIN) EXERTS A CHARACTERISTIC OF TETRACYCLINS ACTION SPECTRUM BUT IT PROVED MORE EFFICIENT THAN ITS STRUCTURAL HOMOLOGUES. TOLERANCE OF THE DRUG WAS GOOD AND ONLY TWO PATIENTS DEVELOPED VOMITING. VIBRAMYCIN PROVED HIGHLY EFFICIENT IN THE TREATMENT OF ACUTE INFECTIOUS DISEASES. THE CONCENTRATION OF DOXYCYCLIN REACHES 2.55-1.72 GAMMA-ML OF BLOOD SERUM FOLLOWING INTAKE OF 200 MG. WHICH IS SIGNIFICANTLY HIGHER THAN WITH OTHER TETRACYCLINS. FURTHER INTAKE PER 100 MG KEEPS ANTIBACTERIAL CONCENTRATION ON A HIGH LEVEL. DATA ON THE BINDING OF DOXYCYCLINE BY BLOOD SERUM PROTEINS ARE ONLY PRELIMINARY AND CONTROVERSIAL AND NEED FURTHER STUDY.

UNCLASSIFIED

USSR

UDC: 534.341.001.572

SUGAKOV, V. I., TYCHINSKIY, A. V., DANILOV, V. V.

"Amplified Magnetostatic Echo"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 781-786

Abstract: The paper outlines the theory of the amplified magnetostatic echo. The analysis is based on examination of a system of nonlinearly interacting modes of magnetostatic oscillations with regard to relaxation processes. The curve for the amplification factor as a function of the interpulse spacing is studied in detail. It is shown that this curve may have a maximum determined by competing processes of amplification and relaxation. The theoretical results agree satisfactorily with experimental data.

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USSR

UDC 621.385:530.145.6:62

TYCHINSKIY, V. P.

"Technological Applications of Gas Lasers (Survey)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Engineering. Scientific and Technical Collection. Microwave Electronics), 1971, vyp. 1, pp 52-68 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D433)

Translation: Information is presented on Soviet gas lasers which can be used to realize a number of technological processes, including dimensional treatment of films, adjusting the value of resistors of integrated circuits, and so on. Two technological devices based on gas lasers are described (TILU-1 and Signal). The results of practical utilization of these devices are reported.

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Instrumentation and Equipment

USSR

UDC 621.791.948+621.375.8.037:
681.326.3:62-41

TYCHINSKIY, V. P., Doctor of Technical Sciences, VASIL'YEV, K. V., Candidate of Technical Sciences, TROFIMOV, A. A., BABENKO, V. P., SUKHININ, G. K., YELISEYENKOV, V. I., Engineers, Research Institute for Gas Welding and Cutting Machinery

"Program-controlled Machine for Gas-laser Cutting of Sheet Materials"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 72, pp 52-53.

Abstract: The Institute has developed a machine for cutting of alloy steels, titanium and other materials using carbon-dioxide lasers, allowing any contour to be cut in the tracking mode. Contour control of the machine is by a digital programmed device using punch tape. The machine has been tested using various materials including 1-10 mm sheets of low-carbon and alloy steels of various types. Good cutting accuracy has been achieved: parts have been cut from sheets up to 3 mm thick, with smooth, even edges and very small zone of thermal effect near the cut. Cuts are very thin (a few tenths of a millimeter).

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PHENYLTRIALKYL SILOXANE OLIGOMERS WITH BRANCHED MOLECULAR STRUCTURE
-U-
AUTHOR--(05)-TYERSKAYA, S.A., ANDRIANOV, K.A., CHERNOBROVKINA, M.N.,
TIKHONOV, V.S., ALANICHEV, V.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 339-46
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SILOXANE, HETEROCYCLIC OXYGEN COMPOUND, CONDENSATION REACTION,
MOLECULAR STRUCTURE, BENZENE DERIVATIVE, CHEMICAL STABILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1735 STEP NO--UR/0079/70/040/002/0339/0346
CIRC ACCESSION NO--AP0112725
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112725

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYDROLYTIC POLYCONDENSATION OF PHSICL SUB3 GAVE (PHSIO SUB1.5) SUBN (I), MOL. WT. SIMILAR TO 3 TIMES 10 PRIME4. THE DEPOLYMN. OF I WITH ME SUB3 SIOK, ET SUB3 SIOK, ME SUB2 (F SUB3 C-CH SUB2 CH SUB2)SIOK, OR THEIR MIXTS. IN XYLENE AT 140DEGREES, FOLLOWED BY REACTION OF THE OLIGOMERS WITH ME SUB3 SICL GAVE OLIGOMERS, SUCH AS ((ME SUB3 SIO) SUB2 SIPH) SUB2 O, II, III, OR IV. THE OLIGOMERS WERE PURIFIED BY DISTN. MORE COMPLEX OLIGOMERS GAVE ONLY LOW DISTN. YIELDS AND THEIR STRUCTURES WERE NOT ESTABLISHED. THESE OLIGOMERS ARE STABLE TO SIMILAR TO 350DEGREES. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 629.78.017.2

MIKHAYLOV, F. A., TYKHEVICH, O. F., and KHADZHINOV, M. K.

"Calculation of the Characteristics of Different Structural Combinations of Linear Transitional Systems"

Tr. Mosk. Aviats. In-ta (Works of the Moscow Aviation Institute), No 240, 1972, pp 116-122 (from Referativnyy Zhurnal--Raketostroyeniye, No 5, May 73, Abstract No 5.141.143 by the authors)

Abstract: As is known, the transfer function of a linear transitional system is the natural expansion of the concept of the transfer function of a steady system, but in contrast to a steady system a transitional system generally cannot be obtained with the aid of a finite number of operations on the coefficient of dynamics equations. Methods of finding transfer functions of different structural combinations (except parallel), done for steady systems, cannot be used for transitional system. This article was devoted to the problem of finding approximate analytical expressions of transfer functions for different combinations of linear transitional systems. It is assumed that the given and sought for transfer functions can be approximately expressed in the form:

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UDC 629.78.017.2

MIKHAYLOV, F. A., et al., Tr. Mosk. Aviats. In-ta, No 240, 1972, pp 116-122

$$W_1(s,t) = \frac{s_{1,0}(t)s^{q-1} + \dots + c_{1,q-1}(t)}{s^q + d_{1,1}(t)s^{q-1} + \dots + d_{1,q}(t)}$$

where i --index of chain or combination; c_{ij} , $j = 0 \dots, q-1$, d_{ij} , $j = 1, \dots$, q --real coefficients, s --complex variable. The problem is reduced to finding formulas which express the coefficients of transfer coefficients of combinations through the coefficients of transfer functions for chains. Since solution of this problem depends on the proposed degree of the polynomial of the transfer function denominator, then it is necessary to assign the indicated degree to obtain a single-value solution. The variant of solution is examined for the case when the polynomial degree of the transfer function denominator of a combination is determined via the polynomial degree of transfer function denominators of chains by the same rules which pertain to the theory of steady systems. 1 figure, 1 bibliographic reference.

2/2

1/3 027 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE HEAT RESISTANT PROPERTIES OF THE METAL OF STEAM SUPERHEATING
PIPES OF STEEL KH18N12T AFTER VARIOUS KINDS OF HEAT TREATMENT -U-
AUTHOR-(02)-FANTAYEVA, M.I., TYKUCHINSKAYA, T.V.
COUNTRY OF INFO--USSR
SOURCE--TEPLOENERGETIKA, NR 5, 1970, PP 13-16
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--HEAT RESISTANT STEEL, PHYSICAL CHEMISTRY PROPERTY, AUSTENITIC
STEEL, CHROMIUM NICKEL STEEL, TITANIUM STEEL, NIOBIUM STEEL, STEEL HEAT
TREATMENT, METAL PIPE/(U)18CR12NI STEEL, (U)KH18N12T STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----F070/605010/C01 STEP NO--UR/0096/70/000/005/0013/0016
CIRC ACCESSION NO--AP0140117
UNCLASSIFIED

2/3 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS KNOWN THAT THE HEAT RESISTANT PROPERTIES OF AUSTENITIC CHROME NICKEL STEELS OF THE TYPE OF 18CR-12NI, STABILIZED BY TITANIUM OR NIOBIUM, ARE DETERMINED PRINCIPALLY BY THE HEAT TREATMENT REGIME. A RISE IN THE HEAT TREATMENT TEMPERATURE IS ACCOMPANIED, AS A RULE, BY AN INCREASE OF THE TIME PRIOR TO DESTRUCTION, BUT BRINGS ABOUT A DECREASE IN LONG TERM PLASTICITY. IN THIS CONNECTION THERE ARE REASONS TO SUSPECT THAT THE USE OF HIGH TEMPERATURE HEAT TREATMENT AT 1190-1200DEGREESC AT PIPE PLANTS FOR BOILER PIPES MADE OF STEEL KH18N12T WILL PROMOTE EXCESSIVE BRITTLINESS IN STEAM SUPERHEATER PIPES. THE HIGH TEMPERATURE HEAT TREATMENT REGIMES OF COLD ROLLED PIPES OF STEEL KH18N12T THAT ARE PRESENTLY EMPLOYED ARE DETERMINED BY THE NECESSITY OF OBTAINING, IN THE PIPES, THE AUSTENITE GRAIN SIZE STIPULATED IN THE TECHNICAL SPECIFICATIONS AND BY THE STRIVING OF PIPE PLANTS TO REDUCE THE LENGTH OF THE HEAT TREATMENT CYCLE. THE HEAT RESISTANT PROPERTIES OF THE PIPE METAL ARE NOT TAKEN INTO ACCOUNT IN SELECTING THE HEAT TREATMENT REGIME. IN THIS CONNECTION, RESEARCH WAS UNDERTAKEN ON THE EFFECT OF THE HEAT TREATMENT REGIME ON THE HEAT RESISTANT PROPERTIES OF PIPE METAL FROM STEEL KH18N12T. SELECTED FOR INVESTIGATION WERE COLD ROLLED PIPES 32 TIMES 6 MM IN SIZE, FROM FOUR MELTS WHICH DIFFERED IN THE CONTENT OF CARBON AND TITANIUM. IT WAS FOUND THAT THE METAL OF COLD ROLLED PIPES FROM STEEL KH18N12T FROM DIFFERENT MELTS, AFTER HEAT TREATMENT UNDER IDENTICAL CONDITIONS, DIFFERED SUBSTANTIALLY WITH RESPECT TO HEAT RESISTANT PROPERTIES AT 650DEGREESC.

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3/3 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140117

ABSTRACT/EXTRACT--IT IS HELD EXPEDIENT TO INTRODUCE GREATER UNIFORMITY IN THE CARBON AND TITANIUM CONTENT OF STEEL KH18N12T MADE BY DIFFERENT PLANTS. THE BEST COMBINATION OF STRENGTH AND PLASTIC PROPERTIES OF THE METAL OF THE PIPES UNDER INVESTIGATION UNDER CONDITIONS OF LONG TERM DESTRUCTION AT 650DEGREESC WAS OBTAINED AFTER HEAT TREATMENT AT 1175DEGREESC FOR 20 MINUTES. FACILITY: CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF MACHINE BUILDING TECHNOLOGY.

UNCLASSIFIED

Construction

USSR

UDC: 691.88

PONOMARENKO, E. P., Candidate of Technical Sciences,
TYKVA, P. N., DOMIO, A. A., GRIGORCHUK, G. P.,
DENISENKO, V. O., Engineers

"On Chrome Plating of Embedded Parts in Reinforced Concrete Structures"

Moscow, Beton i Zhelezobeton, No. 4, April, 1971, pp 26-28

Abstract: One of the effective means to prevent corrosion is chrome plating, especially the one deposited by the vacuum diffusion method. This method consists of keeping the parts for four hours in a vacuum furnace at 1300°C.

The steel treated by this method loses some of its strength unless it is subsequently normalized.

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USSR

PONOMARENKO, E. P., et al, Beton i Zhelezobeton, No 4, April 1971, pp 26-28

Welding of the chrome plated parts with stainless electrodes does not destroy the chrome plating.

Tests with nitric acid showed that the corrosion resistance of chrome plated specimens equals that of chrome-nickel steel.

Use on chrome plated parts for the prefabricated building panels results in considerable savings over the galvanizing method.

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1/2 041 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--HYDRAULIC PRINCIPLES OF BUBBLING -U-
AUTHOR--(05)-POZIN, L.S., TYES, V.G., AKSELROD, L.S., AEROV, M.E.,
BYSTROVA, T.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 271-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PRESSURE GRADIENT, PRESSURE MEASUREMENT, GAS FLOW, STATIC
PRESSURE, WATER, TWO PHASE FLOW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1649 STEP NO--UR/0153/70/013/002/0271/0276
CIRC ACCESSION NO--AT0133554
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--20NOV70

GIRC ACCESSION NO--AT0133554

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM STUDIES OF THE STATIC HEAD OF LIQ. (WATER) AT VARIOUS POINTS ABOVE A 8-MM THICK, 200-MM DIAM. PERFORATED PLATE WITH 31 HOLES OF 3-MM DIAM. AND AT AIR VELOCITIES OF 30-400 M-SEC. THROUGH THE ORIFICES, THE FOLLOWING EQUATION WAS DEVELOPED FOR THE COEFF. K, CHARACTERIZING THE DECREASE IN MEASURABLE STATIC HEAD COMPARED TO THE ACTUAL HEAD: $\gamma_{\text{SUBL}} (\bar{P}_H - \bar{P}_H) = K (\gamma_{\text{SUBG}} W_{\text{SUBO}}^2 - 2G)$. WHERE γ_{SUBL} AND γ_{SUBG} ARE THE DS. OF LIQ. AND GAS, $\bar{P}_H$ AND $\bar{P}_H$ ARE THE EFFECTIVE AND AV. MEASURED STATIC LIQ. HEADS, AND W_{SUBO} IS THE GAS VELOCITY. THE EXPT. VALUES OF K FOR THIS STUDY WAS 0.0167 WHICH COMPARES WELL WITH A CALCD. VALUE OF 0.014, AND WITH OTHER DATA IN THE LITERATURE. FACILITY: MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

1/2. 021

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--OPTICAL GLASS -U-

AUTHOR--(05)-NIKOLINA, G.P., KHALILEV, V.D., IVANOV, V.N., PETROVSKIY,
G.T., TYLEVICH, F.G.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 267,030

REFERENCE--OTKRYTIYA, IZOBRET., PRGM. OBRAZTSY, TOVAKNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL-PATENT, GLASS COMPOSITION, OPTIC GLASS, CALCIUM
FLUORIDE, ALUMINUM FLUORIDE, BERYLIUM FLUORIDE, YTTRIUM, STRONTIUM
COMPOUND, POTASSIUM COMPOUND, LANTHANUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--3004/1803

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132069

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132069

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. TO INCREASE MOISTURE RESISTANCE AND TRANSPARENCY IN THE 165-5000 MMU LONG WAVE RANGE, AS WELL AS TO DECREASE THE CRYSTN. TENDENCY AND THE M.P., YF SUB3 5-12 MOLE PERCENT WAS ADDED TO OPTICAL GLASS CONSISTING OF: BEF SUB2 49-54, AIF SUB3 10-15, CAF SUB2 LESS THAN 12, SRF SUB2 LESS THAN 9, LAF SUB3 LESS THAN 3, AND KF 12-24 MOLE PERCENT. FACILITY: LENSOVET TECHNOLOGICAL INSTITUTE, LENINGRAD.

UNCLASSIFIED

USSR

UDC 669.01:621.78

BOL'SHAKOV, V. I., PIMAKHOV, D. P., ORLOV, L. G., TYLMIN, M. A., ZOTEYEV, V. S., and BORKOVSKIY, YU. Z.

"The Effect of Thermomechanical Treatment on the Impact Ductility, Crack Propagation, and Disintegration Viscosity"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82), Jul-Aug 73, p 32

Abstract: Results are presented of an investigation of the mechanical properties of 14Kh2GMR steel after the usual heat treated and after high-temperature thermomechanical treatment (HTMT). Tabulated replot, relative elongation, relative contraction, fatigue limit, and impact ductility at various temperatures. HTMT was found to somewhat increase the strength characteristics of the steel. HTMT does not lower the plasticity, it substantially increases the impact strength at the expense of the increasing share of the work of crack propagation. The increase of structural strength of 14Kh2GMR steel by HTMT lasts up to a 6500 C temper temperature. The creation of a stable substructure by hardening increases the resistance of the steel to brittle failure and decreases its susceptibility to stress concentrations. Two tables, four bibliographic references,

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USSR

UDC 621.874:624.023.9337:620.178.3.-974

KOBRIN, Y. M., Candidate of Technical Sciences, FEDOROV, YU. K., Engineer,
ZINGERMAN, B. Z., Engineer, ZOTEYEV, V. S., Candidate of Technical Sciences, and
TYLKIN, M. A., Doctor of Technical Sciences

"Fatigue Strength of the Welded Beam Support Subassembly of Overhead Travelling
Cranes at Minus Temperatures"

Moscow, Vestnik Mashinostroyeniya, No 4, Apr 73, pp 16-19

Abstract: The authors determine the effect of low temperatures on the fatigue strength of the support subassemblies of welded metal structures with sharply varying cross sections. The jib of a 20-ton series produced travelling crane is studied. The beam is made from St3 grade steel and welded with the E42A electrodes. The bent sheet of the bottom band is welded to the vertical wall by a bilateral angular seam (10 mm fillet). Tests were conducted at +20 and -40°C on a hydraulic-pulsed testing machine including refrigeration equipment. The fatigue limits for the full scale beams of a travelling crane are determined by the interpolation method and are $\sigma=13.4 \text{ kg/mm}^2$ for +20°C and $\sigma=11.3 \text{ kg/mm}^2$ for -40°C.

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USSR

UDC 621.771.22.001.5

BREZHNEV, Ya. I., IVANCHENKO, F. K., and TYLKIN, M. A.

"An Investigation of the 550 Reduction Stand of the Light-Section Mill"

Moscow, Plasticheskaya Deformatisiya Metallov i Splavov, "Metallurgiya"
Publishing House, No. 64, 1970, pp 113-116

Translation: A comprehensive study was made of the 550 reduction stand of the light-section mill.

The amount of metal pressure on the rolls in different passes was determined, and on this basis checking calculations were made of the durability of the primary stand assemblies. Two illustrations and one table.

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- 27 -

USSR

UDC 621.979.07

TYIKIN, M. A., ALEKSANDROV, V. P., and CHECHEKIN, Yu. F.

"Durability of Stamps During Hot Stamping on Presses"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya,"
1970, pp 211-216

Translation: An analysis is made of the effect of a number of basic factors on the durability of the tool of crank hot stamping presses. On the basis of extensive factual material, the effect of the mass of forged pieces, mass, productivity of the press, and other factors on the durability of press inserts is evaluated. A classification of forged pieces by groups, for which the intervals of stamp durability are determined, is made according to the results of a study of worn out stamps. Two figures, one table, and 11 bibliographic entries.

1/1

- 31 -

USSR

UDC 669.017:539.4+669.27/29

SAVITSKIY, YE. M., TYLKINA, M. A., KONIYEVA, L. Z.,
LOGUNOV, A. V., and PETRUSHIN, N. V., Institute of Metallurgy
imeni A. A. Baykov

"Investigation of Carbon Solubility in Mo+45%Re Alloy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Tsvetnaya Metallurgiya, No 6, 1973, pp 125-129

Abstract: The solubility of C in the Mo+45%Re alloy was investigated by measuring the electric resistance. The derived experimental data show that the solubility of C in the Mo+45%Re alloy comprises 0.035% at 1550° and that it comes up to 0.05% at 1800°. In the presence of 45%Re, the solubility of C in Mo rises 25% at 1800° and 75% at 1550°. The presence of 0.035%C in the solid solution increases the electric resistance ρ of the alloy by 7.5 $\mu\Omega\cdot\text{cm}$; the presence of carbides in the alloy at a C content up to 0.265% has no noticeable influence on the level of its ρ . The temperature coefficient of ρ of Mo+45%Re alloy can be considered nearly constant and equal to $2.9 \cdot 10^{-3} \mu\Omega\cdot\text{cm}\cdot\text{deg}^{-1}$; it decreases at transition into the 0.035%C solid solution. The ρ -curve of the Mo+45%Re+0.4%C alloy shows a break at 1250-1260°. Three figures, one table, 11 bibliographic references.

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USSR

UDC669.294.5'293'849

SAVITSKIY, YE. M., TYLKINA, M. A., ALYUSHIN, V. YE., KUZ'MA, YU. B., and
TELEGUS, V. S., Moscow

"Ternary Sigma- and Chi-Phases in the Ta-Nb-Re System"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 229-233

Abstract: The structure and certain physical and mechanical properties of sigma- and chi-phases in the ternary system Ta-Nb-Re were investigated, where it was found that this system is characterized by a large region of ternary solid solutions of Re in Ta and Nb, low solubility of Ta and Nb in Re, and the formation of two compounds of the sigma- and chi-phase type where the sigma-phase exists only at high temperatures, being decomposed into the alpha-solid solution and chi-phase. Lattice parameters, melting points, hardness, resistivity, and transition temperature to the superconducting state were determined for the sigma- and chi-phases. Alloy composition and transition temperatures are given for alloys with a constant Re content (approximately 71%), for the binary chi-phase (Re_3Nb) and the binary chi-phase. The transition temperature to the superconducting state of ternary chi-phases was 1.5-2 times higher than the transition temperature for binary chi-phases in Nb-Re and Ta-Re systems. Two figures, one table, seven bibliographic references.

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Acc. Nr:

AP0049532

Abstracting Service
CHEMICAL ABST. 5/70

Ref. Code:

UR0370

104472h Phase diagram of a hafnium-aluminum system. Tsyanova, I. A.; Tylkina, M. A.; Savitskii, E. M. (USSR). *Izv. Akad. Nauk SSSR, Metall.* 1970, (1), 160-3 (Russ). Alloys were prepd. from iodide Hf with a purity of 99.8% and Al of AV-000 type with a purity of 99.99%. Annealing was at 340 and 1000° for 500 hr. There is unlimited soly. of the components in the liq. state. Hf_2Al_3 melts congruently at $1530 \pm 25^\circ$, the microhardness of the compd. is 740 kg/mm², elec. resistivity is 170×10^{-8} ohm cm, and the transition to the superconducting state is at 7.65°K. HfAl melts congruently at 1800°, its microhardness is 800 kg/mm², elec. resistivity is 500×10^{-8} ohm cm, and the transition point is at 8.2°K. Hf_2Al_3 is formed by a peritectic reaction at $1640 \pm 25^\circ$, its microhardness is 670 kg/mm², elec. resistivity is 60×10^{-8} ohm cm, and the transition point is at 7.8°K. HfAl_2 melts congruently at $1650 \pm 25^\circ$, its microhardness is 740 kg/mm², and elec. resistivity is 75×10^{-8} ohm cm. HfAl melts congruently at 1590°, its microhardness is 350 kg/mm², and the elec. resistivity is close to that of Al. The formation of Hf_2Al_3 was not confirmed. There are 4 eutectics between the resp. compds. in the system: at 1530, 1550, 1495, and 1540°. The m.p. of Hf when alloyed with Al rapidly de-

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creases from 2222° to 1530° (the eutectic transition), the max. soly. of Al in β -Hf being 33-5 atom %. The soly. of Al in α -Hf decreases from 30 atom %, in alloys quenched at a temp. close to the m.p., to 12.5 atom % at 1000°. In the region of solid solns. the alloying with Al is accompanied by an increase in hardness from 170 kg/mm² for pure Hf to 420 kg/mm² for an alloy at the boundary of satn. and the elec. resistivity increased from 36 to 170 microhm cm for the same alloys.

L. Holl

2/2

19801399

75

USSR

UDC: 536.2:536.63

PELETSKIY, V. E., CHEKHOVSKOY, V. Ya., SOVITSKIY, Ye. M., TYLKINA, M. A.,
AMASOVICH, Ye. S., ARSKAYA, Ye. P., ZAYCHENKO, V. M., PETUKHOV, V. A.,
Institute of High Temperatures of the Academy of Sciences of the USSR,
Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of
the USSR

"Some Physical Properties of a New Alloy in the Nickel-Rhenium-Molybdenum
System"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 2, Mar/Apr 73, pp
435-436

Abstract: The authors study the heat conduction, coefficient of thermal
expansion and resistivity of an alloy in the nickel-rhenium-molybdenum
system containing 10 wt.% Re and 15 wt.% Mo. Curves are given showing the
temperature dependence of the measured parameters between 100 and 1000°C.
The results indicate structural transformation of the alloy in the solid
state. Analysis points to the possibility of formation of the so-called
K-state observed in the region of solid solutions of the nickel-chromium
system with more than 16% chromium. However, a final explanation of the
observed anomalies will require further research.
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USSR

UDC: 539.166.074

BRATANOVSKIY, V. V., GENERALOVA, V. V., GURSKIY, M. N., and TYLTAYEV, A. V.

"Metrologic Verification of the State of Measuring Gamma-Radiation Doses in the $1 \cdot 10^3$ - $10 \cdot 10^8$ Rad Interval With Liquid Chemical Detectors"

V sb. Dozimetriya i radiats. protsessy v dozimetr. sistemakh (Dosimetry and Radiation Processes in Dosimetric Systems -- collection of works), Tashkent, "Fan", 1972, pp 100-103 (from RZh-32. Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973, Abstract No 5.32.1321)

Translation: The metrologic verification of the state of measuring gamma-radiation doses in the $1 \cdot 10^3$ - $10 \cdot 10^8$ rad interval with liquid chemical detectors showed that nearly one fourth of the digital values of an exposure dose diverge with the assigned value to magnitudes which exceed the measurement error. The number of overestimated results is nearly twice that of the underestimated. This attests to the presence of systematic error. Ways of improving the state of measuring gamma-radiation doses are indicated. Original article: one illustration and one table.

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1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REACTIONS OF O,CHLOROMETHYL BENZONITRILE WITH AMINES. CONDENSATION
OF O,CHLOROMETHYL BENZONITRILE WITH AROMATIC AND ALIPHATIC AMINES -U-
AUTHOR--(021)-BABICHEV, F.S., TYLTIN, A.K.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(1), 62-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC NITRILE COMPOUND, AROMATIC AMINE, ALIPHATIC AMINE,
HETEROCYCLIC NITROGEN COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0073 STEP NO--06/0073/70/036/001/0062/0065
CIRC ACCESSION NO--AP0125908
UNCLASSIFIED

2/2 011
CIRC ACCESSION NO--AP0125908

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 0,CLCH SUB2 C SUB6 H SUB4 CN AND
RNH SUB2 GIVE I, CONVERTED TO II BY BASE. II WITH ME SUB2 SO SUB4 FORM
III, THE FREE BASE (IV) OF WHICH CAN BE CONVERTED TO V WITH ME SUB2 SO
SUB4. THE COMPOUS. ARE CHARACTERIZED. I,V, AND III (R EQUALS PH) WITH
20PERCENT NaOH GAVE N-PHENYLPHTHALIMIDINE. FACILITY: KIEV. GDS.
UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--REACTIONS OF O,CHLOROMETHYLBENZONITRILE WITH AMINES. J.
CONDENSATION OF O,CHLOROMETHYLBENZONITRILE WITH ANTHRANILIC ACID ESTERS
AUTHOR--(02)-BABICHEV, F.S., TYLTIN, A.K. T
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(2), 175-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CONDENSATION REACTION, CHLORINATED ORGANIC COMPOUND, AMINE
DERIVATIVE, ORGANIC NITRILE COMPOUND, ALKYLATION, ISOMER, KETONE,
BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2221 STEP NO--UR/0073/70/036/002/0175/0178
CIRC ACCESSION NO--AP0125800
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE---27NOV70

CIRC ACCESSION NO--AP0125800

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. O-CLCH SUB2-C SUB6 H SUB4 CN AND O-H SUB2 NC SUB6 H SUB4 CO SUB2 ME IN ISO-PROH WAS REFLUXED TO GIVE 11H-ISOINDOLO(2,1-A)QUINAZOL-5-ONE-HCL, M. 282-4DEGREES (ETOH), ALSO PREPD. FROM O-H SUB2 NC SUB6 H SUB4 CO SUB2 ET (FREE BASE (I) M. 274-7DEGREES (HCONME SUB2)). THE HYPOTHETICAL INTERMEDIATE IS A DERIV. OF IMINOPHTHALIMIDINE. I AND ME SUB2 SO SUB4 OR P-MEC SUB6 H SUB4 SO SUB3 ET FORMED THE CORRESPONDING SALTS, M. 268-70DEGREES, AND 278-80DEGREES (HOAC), RESP. THESE SALTS WERE CONVERTED BY AQ, NH SUB4 OH INTO THE CORRESPONDING 6-ALKYLISOINDOLO(2,1-A)QUINAZOL-5-ONES (II), M. 190-2DEGREES (PYRIDINE) AND 138-41DEGREES (PYRIDINE), RESP. THE IR SPECTRA OF THESE COMPODS. ARE NOT IN ACCORD WITH THE ISOMERIC STRUCTURE INVOLVING O,ALKYLATION. II REACTED EASILY WITH AC SUB2 O, BZCL, AND PHN SUB2 CL TO FORM THE 11-SUBSTITUTED DERIVS. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 025
UNCLASSIFIED
TITLE--MECHANICAL QUENCHING OF THE LIGHT YIELD OF LIQUID SCINTILLATORS -U-
PROCESSING DATE--30OCT70
AUTHOR--(104)-ZEMSKOVA, I.I., ZHILTSOVA, L.YA., MATVEYEVA, YE.N., TYMINSKIY,
V.G.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 83-4
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--FLUID SCINTILLATION, LUMINESCENCE QUENCHING, QUANTUM YIELD,
IRON POWDER, TOLUENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1996/0538
STEP NO--UR/0120/70/001/000/0083/0084
CIRC ACCESSION NO--AP0117768
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0117768
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. DATA ARE GIVEN FOR DETN. OF QUENCHING FLASHES OF A LIQ. SCINTILLATOR BASED ON TOLUENE BY POWD. FE AND CU. IF N IS THE NO. OF READINGS IN A GIVEN TIME AND C IS THE CONCN. OF THE QUENCHING MATERIAL, IT IS POSSIBLE TO DERIVE AN EQUATION C EQUALS C SUBONE HALF IN (N SUBO-N)-0.693, WHERE C SUBONE HALF IS THAT CONCN. OF THE QUENCHING MATERIAL AT WHICH THE LUMINESCENCE YIELD DIMINISHES TO HALF OF THE INITIAL VALUE, AND N SUBO IS THE NO. OF READINGS WITHOUT THE QUENCHING MATERIAL. COMPARISON OF THE LIGHT YIELD OF A STD. LIQ. SCINTILLATOR WITH THAT OF A CONTAMINATED ONE PERMITS TO DET. THE AMT. OF QUENCHING MATERIAL PRESENT WITH AN ACCURACY OF SIMILAR TO 10 PRIME NEGATIVES G. USSR. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA,

UNCLASSIFIED

USSR

UDC 621.398.654.93

SVENSON, A. N., TYNNAYA, N. T., L'vov

"Estimating the Carrying Capacity of a Hydroacoustic Channel Affected by Non-stationary Reverberation Noise"

Kiev, Otkor i Peredacha Informatsii, No 29, 1971, pp 27-30

Abstract: A study was made of the possibility of improving the efficiency in remote control systems using a hydroacoustic communications channel. The non-stationary component of the reverberation noise affecting such a channel was taken as the factor limiting its carrying capacity. The carrying capacity of the channel is described mathematically. Its carrying capacity can be increased with a decrease in the pulse duration at the reception point. The possibility of practical implementation of this condition is discussed briefly. An experimentally obtained envelope of a pulse train obtained by linear summation with a time shift of an isolated signal of the δ -pulse type distorted on passage through the hydroacoustic channel is compared with the envelopes of the same pulse train first passed through a high-frequency filter.

1/1

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USSR

UDC 621.398.654.93

SVENSON, A. N., and ~~TYNNAYA, N. T.~~, L'vov

"Efficient Coding of a Signal Transmitted over a Hydroacoustic Channel Affected by Reverberation Noise"

Kiev, Otkor i Peredacha Informatsii, No 29, 1971, pp 24-26

Abstract: A study was made of the possibility of improving high-speed digital remote control systems using hydroacoustic communications channels. The conditions are presented for obtaining the optimal binary code by pulses of the detonation type and a multiposition code by frequency pulses.

A sample calculation is made showing that because of the deterministic restrictions imposed on the possibility of using each frequency dispatch it is possible, by using a code with "floating frequencies," to develop a higher data transmission speed under reverberation conditions than with an ordinary multifrequency code.

Practical implementation of such a code presents no difficulties.

1/1

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USSR

UDC 534-i4

SVENSON, A.N., ~~TYNDAYA, N.B.~~

"Concerning The Effective Coding Of A Signal Transmitted In A Hydroacoustic Channel Affected By Reverberation Interference"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection And Transmission Of Information. Republic Interdepartmental Collection), 1971, Issue 29, pp 24-26 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A361)

Translation: The possibility is considered of increasing the effectiveness of high-speed discrete telemechanics systems using a hydroacoustic communication channel. The conditions are presented for obtaining an optimum binary code with the aid of explosive-type pulses, and a multiposition code with the aid of frequency pulses. 1 ill. Summary.

1/1

USSR

UDC 534-14

SVENSON, A.N., TYNNAYA, N.T.

"Concerning An Evaluation Of The Transmitting Capacity Of A Hydroacoustic Channel Affected By Unsteady Reverberation Interference"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection And Transmission Of Information. Republic Interdepartmental Collection), 1971, Issue 29, pp 27-30 (From RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A362)

Translation: The possibility is considered of an increase of efficiency in telemechanical system using a hydroacoustic communication channel. The unsteady component of reverberation interference affecting such a channel is taken as a factor limiting the transmission capacity of the channel. 3 fig. 10 ref. Summary.

1/1

- 33 -

1/2 026
UNCLASSIFIED
TITLE--EFFECT OF THE RATE OF DEFORMATION ON THE STRENGTH OF POLYMER
MATERIALS IN LIQUID MEDIA -U-
AUTHOR--(04)-TYNNVY, A.N., KOLEVATOV, YU.A., SUSHKO, A.I., KALININ, N.G.
COUNTRY OF INFO--USSR
SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 5(6), 677-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--DEFORMATION RATE, POLYMETHYLMETHACRYLATE,
POLYTETRAFLUOROETHYLENE, MECHANICAL STRENGTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0836
STEP NO--UR/0369/70/005/006/0677/0679
CIRC ACCESSION NO--AP0119740
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119740

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION BETWEEN DEFORMATION RATE OF POLY(ME METHACRYLATE) AND THAT OF FTOROPLAST-4 (POLY(TETRAFLUOROETHYLENE) AND THE EFFECTS OF ENVIRONMENT (AIR, OLEIC ACID, PETROLATUM, H SUB2 O, GASOLINE, ETOH, AND ACETONE) WERE INVESTIGATED. THE ADVERSE EFFECT OF LIQS. ON THE STRENGTH OF POLYMERS DECREASED WITH INCREASING DEFORMATION RATE. THIS RELATION IS EXPLAINED IN TERMS OF TIME COMPETITION BETWEEN MECH. DEFORMATION AND PHYSICOCHEM. PROCESSES LIKE ADSORPTION OR WETTING. FACILITY: FIZ,-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CRACKING OF FLUOROPLASTIC TUBING -U-
AUTHOR--(05)-SYTY, YU.V., GUDIMOV, M.M., SUSHKO, A.I., TYNNY, A.N.,
KALININ, N.G.
COUNTRY OF INFO--USSR
SOURCE--FIZ.-KHIM. MEKH. MATER 1970, 6(2), 87-90
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--FLUOROCARBON RESIN, HYDRAULIC FLUID, POLYMER HEAT EFFECT, LOW
TEMPERATURE EFFECT, RUBBER, ANISOTROPY, STRESS ANALYSIS, CRACK
PROPAGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/E09 STEP NO--UR/0369/70/006/002/0087/0090
CIRC ACCESSION NO--AP0140317
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140317

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE TEMP. IN THE MINUS 60 TO PLUS 230DEGREES RANGE, TIME, AND CONTACT WITH AVIATION HYDRAULIC FLUID WAS STUDIED ON THE DEVELOPMENT OF CRACKS ON THE SURFACE OF TUBING MADE OF FLUORINATED RUBBER. MOST CRACKS ARE ALIGNED ALONG THE TUBE AXIS INDICATING THAT RADIAL RATHER THAN LONGITUDINAL STRESSES PRODUCE THEM. THE PLASTICIZING OF THE RUBBER WITH THE HYDRAULIC FLUID AND THE ANISOTROPY OF THE RUBBER STOCK INDUCED BY EXTRUSION ARE CONTRIBUTING FACTORS. FACILITY: FIZ.-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

1/2 047
UNCLASSIFIED
TITLE--SETUP FOR FATIGUE STRENGTH TESTING OF POLYMER MATERIALS IN VACUUM
AT LOW AND HIGH TEMPERATURES -J-
AUTHOR--(04)-SOSHKO, A.I., SPAS, YA.M., KALININ, N.G., TYNNY, A.N.
PROCESSING DATE--23OCT70
COUNTRY OF INFO--USSR
SOURCE--FIZIKOKHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, NO. 1, 1970, P.
84-86
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS
TOPIC TAGS--FATIGUE STRENGTH, PLASTIC DEFORMATION, LOW TEMPERATURE EFFECT,
HIGH TEMPERATURE EFFECT, VACUUM, CRYOGENIC EFFECT, POLYMER, FATIGUE
TEST, CYCLIC LOAD TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1246
STEP NO--UR/0369/70/006/001/0084/0086
CIRC ACCESSION NO--AP0116708
UNCLASSIFIED

2/2 047

CIRC ACCESSION NO--AP0116708

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A SETUP FOR STUDYING THE FATIGUE STRENGTH AND DEFORMABILITY OF POLYMER MATERIALS IN VACUUM, AIR, AND GAS ATMOSPHERES AT LOW AND HIGH TEMPERATURES. A STRUCTURAL DIAGRAM AND DETAILED DESCRIPTION OF THIS SETUP ARE PRESENTED. SAMPLES CAN BE SUBJECTED TO CYCLIC LOADING AT FREQUENCIES RANGING FROM 500 TO 1400 CPM AND TEMPERATURES RANGING FROM MINUS160 TO PLUS300 C. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-MEKHANICHESKII INSTITUT, LVIV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 666.22:539.551

NEMILOV, S. V., KRYLOVA, L. A., ROMANOVA, N. V., ZHUKOVA, A. N., ALEKSEYEVA, R. A.,
NOVIKOVA, M. P., BESPAL'KO, Z. P., and TYNYANKINA, A. N.

"Viscosity of Optical Glasses"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1218-1225

Abstract: The viscosity η of 120 grades of glass ($\eta = 10^2 - 10^{13}$ poises) in relation to the temperature was determined. The results are listed in tables showing values of $\lg \eta$ for various temperatures t . The values included in the tables were obtained in part by interpolation and extrapolation of experimental values to cover the complete $\eta = 10^1 - 10^{16}$ poises range ($t = 312-2010^\circ$). Determinations at $10^1 - 10^{13}$ poises were carried out by the method of pressing in described earlier, those at $10^1 - 10^4$ poises by means of GOI automatic rotational viscosimeters. Measurements of η carried out by the first method on glass No 710 of the USA National Bureau of Standards led to results which coincided with those reported by A. Napolitano and E. G. Hawkins, J. Res. Nat. Bur. Stand., A. Phys. & Chem., 68A, 439, 1964. The rotational viscosimeters were calibrated at $10^2 - 10^4$ poises on the basis of values reported for glass No 710. Data obtained for B_2O_3 by means of these viscosimeters agreed with those reported in the literature. A glass with the composition SiO_2 69.60, B_2O_3 11.09, Al_2O_3 2.00, As_2O_3 0.10, BaO 0.65, CaO 1.37,

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USSR

NEMILOV, S. V., et al., Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70,
pp 1218-1225

MgO 0.80, K₂O 4.16, Na₂O 10.23 mole % was formulated, measurements on which
in the $10^2 - 10^{13}$ poises ($t = 600-1300^\circ$) range led to results that were readily
reproducible.

USSR

TYNYANSKIY, N. T.

UDC: 51

"Duality of Optimization Problems in Euclidean Spaces"

V sb. Probl. kibernetiki (Problems of Cybernetics—collection of works),
vyp. 24, Moscow, "Nauka", 1971, pp 43-72 (from RZh-Kibernetika, No 4,
Apr 72, Abstract No 4V427)

Translation: A coherent and fairly complete exposition is given of the
theory of conjugate functions and its applications to the problem of non-
linear programming and the theory of convexo-concave games. Bibliography
of 23 titles. Author's abstract.

1/1

USSR

KRISILOV, Yu. D., ~~TYNYNYKA, A. H.~~, VAULIN, V. Ye., Odessa Polytechnical
Institute

UDC: 621.375

"An Amplifier With Automatic Gain Control"

USSR Author's Certificate No 321919, filed 30 Jun 70, published 31 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,
Jul 72, Abstract No 7A74 P)

Translation: This Author's Certificate introduces an amplifier with
automatic gain control which contains a bridge attenuator at the output
with a nonlinear element across which the control voltage is applied.
To extend the dynamic range of signals which can be amplified, a voltage
phase-reversed by 180 degrees relative to the output voltage of the
bridge is sent from the amplifier output through a capacitor to the
tiepoint between the nonlinear element and one of the input arms of the
bridge. One illustration.

1/1

- 9 -

USSR

UDC 621.357.7(088.8)

KARPOV, P. S., PYEAL'CHENKO, M. K., TYPITSYN, G. I., and YARKIN, V. V.,
Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Electrolytic Deposition of Highly Porous Metal Layers"

USSR Author's Certificate No 324301, Filed 22 Sep 69, Published 6 Mar 72
(from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, No 23(II), 1972, Abstract
No 23L269)

Translation: The patented method uses an electrolyte containing suspended insoluble metal particles. The metal particles are of the same kind as those being deposited. The particles serve as cathode with high catalytic activity. For example, in order to obtain the Ni catalyst, a nickel carbonyl powder PNK-1 is added to the H_2SO_4 electrolyte. The electrolyte composition is (g/liter): $H_2SO_4 \cdot 7H_2O$ 100-150, Na_2SO_4 40-60, H_3BO_3 20-30, NaCl 3-5, nickel carbonyl powder 75-150. The electrolytic deposition is carried out at pH 2-5, $50^\circ C$, D_c 4-12 a/dm² with intensive mechanical mixing of the electrolyte.

1/1

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0049916

Abstracting Service:
GEOPHYSICAL ABST.

5/10 Ref. Code:
280492

91744w Analysis of the technological scheme of two-stage absorption. Tyrevskii, E. N.; Aleksandrov, I. A.; Khalif, A. L. (USSR). *Chem. Prom.* 1970, 15(1), 35-7 (Russ). A comparison of 2-stage and single-stage absorption sepn. of multi-component gas mixts. was made based on straight equil. and operating lines. An example is given for the calcn. of the sepn. of a mixt. consisting of N_2 and C_{1-4} hydrocarbons. The economic advantage of the 2-stage system over the single-stage one was proved. Relations are given enabling the detn. of the amt. of solvent decrease in the 2-stage system. The calcn. of the amt. of solvent for the 2-stage absorption must be done for lower sections of the app.
Z. Sterbacek

REEL/FRAME
19801852

USSR

UDC 621.357.7.035.2:669.587

TYRINA, L. M., SARKIS'YANTS, N. A., and SHLYGIN, A. I.
"The Rate of Electroprecipitation and Electrodeposition Reactions on a Zinc Electrode"

English Version Above. Topic Books from the Dal'nevost University, Vladivostok, 1972, pp 75-78 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L302 by V. V. Grinina)

Translation: As an example of the reaction of electroprecipitation and electrosolution of zinc in $ZnSO_4$ solutions, a study was made of the velocity of the electrochemical reactions in the metal ion systems in solution. A study was carried out using methods of stationary and rapid method stripping polarization curves. It is probable that during an increase in the polarization during the processes of electrodeposition and electrosolution of zinc a change in the limiting rate of the steps occurred.

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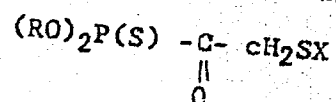
USSR

UDC 547.26'118.122.07

TYRKINA, T. S., SHVETSOVA-SHILOVSKAYA, K. D., and MEL'NIKOV, N. N.
"A Method of Synthesizing 0,0-Dialkyl-S-(1-Oxo-2-Alkylmercapto)-
-Ethyldithiophosphates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye
Znaki, No 14, 1970, Author's Certificate No 268428, filed 17 Jul
68, p 25

Abstract: This Author's Certificate introduces a method of
synthesizing 0,0-dialkyl-S-(1-oxo-2-alkylmercapto)-ethyldithio-
phosphates of the general formula



where R is an alkyl, and X is an alkyl [sic]. As a distinguishing
feature of the patent, 0,0-dialkyl-S-chloroacyldithiophosphates
are interacted with mercaptans in the presence of acid-binding
agents with subsequent isolation of the gal product by a con-
ventional method.

1/1

USSR

TYRMOS, V. I., FONTANKINA, V. S.

UDC: 51:621.391

"Algorithm for Optimizing the System Comprised of Main Administrative Board and Enterprise"

Kiev, Prom. kibernetika--sbornik (Industrial Cybernetics--collection of works), 1971, pp 40-50 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V598 by G. Tkachenko)

Translation: The paper deals with the problem of selecting optimum control strategy in a system made up of a main administrative board and an enterprise. This strategy should optimize both the jobs which are common to the entire system, and jobs which arise in individual links of the system. It is proposed that the problem of optimizing the activity of a production union be represented in the form of a set of separate problems to be solved in a certain sequence. The strong dependence on natural conditions dictated the use of a games approach.

1/1

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USSR

UDC 51

TYRMOS, V. I., and FONTANKINA, V. S.

"An Algorithm for Optimizing the 'Chief Enterprise' System"

Kiev, V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), 1971, pp 40-50 (from RZh--Matematika, No 10, 1972, Abstract No 10V598)

Translation: The problem is considered of choosing the optimal control strategy in the "chief enterprise" system. The result of the use of this strategy should be the optimization of general problems for the whole system as well as those problems arising in particular branches of the system. The author poses the problem of optimizing the activity of the production combine in the form of a combination of individual problems that can be solved in a definite sequence. A strong dependence on natural conditions prompted the use of the game approach. G. Tkachenko

1/1

- 78 -

USSR

UDC 8.74

TYRSA, V. YE., DYUNYASHEV, V. V., KIRICHENKO, N. P., LEVYKIN, V. M., ROMANOVA, A. G.

"Analysis of the Accuracy of Analog-to-Digital Transformation with Automatic Exclusion of Systematic Errors"

Pribery i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Instruments and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection), 1972, vyp. 24, pp 103-107 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V452)

Translation: A study was made of the method of analog-to-digital transformation which can be realized in information-measuring devices. For a significant reduction (exclusion) of systematic measurement errors, an information channel is introduced into the block diagram of the converter which permits the code of a standard value in its physical essence an adequate unknown, to be received. On the basis of the analysis of the accuracy of the proposed method of analog-digital transformation, recommendations are made for selection of the optimal ratio of the unknown and the standard variables.

1/1

USSR

MIKHAYLOV, V. A., and TYRSA, V. Ye.

UDC 681.325.3

"Limiting Accuracy Achieved in Analog-to-Digital Angle-Code Converters"

Pribery i sistemy avtomatiki. Resp. mezhved. nauch-tekhn. sb. (Instruments and Automation Systems. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 16, pp 68-72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B468)

Translation: A study is made of the basic types of errors in angle code converters for spatial and time coding, and it is demonstrated that they cannot be decreased without limit. The limit of decreasing the errors is bounded by the level of thermodynamic fluctuations and technological errors which cannot be eliminated. Accordingly, the errors during amplitude and time modulation and the technological errors are investigated. It is demonstrated that the angle-time code interval converters with a constantly rotating sensitive element have maximum accuracy. There is 1 illustration and a 7-entry bibliography.

1/1

USSR

UDC: 669.71.053.4.065(088.8)

TYRTYSHNYY, V. M.

"Installation for Desiliconizing of Aluminate Solutions"

USSR Author's Certificate Number 333130, Filed 21/09/70, Published 19/06/72
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No
8G160P).

Translation: An installation is presented for desiliconizing of aluminate solutions, including series connected reaction autoclaves, over which there is a heating autoclave, and steam lifts. To increase the effectiveness of operation, the steam lifts are installed between the reaction autoclaves and have tangential inlets. 1 figure.

1/1

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USSR

TYRYSHKIN, M. A.

UDC: 8.74

"On Analysis and Synthesis of Systems for Controlling Organizational Complexes (as Exemplified by an Institution of Higher Education)"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 65-72 (from RZh-Kibernetika, No 5, May 73, abstract No 5V855 by V. Gutsin)

Translation: The author considers the structure of systems for control of "organizational complexes" (e. g. the aggregate of personnel and production equipment in an industrial enterprise). In the system for control of an "organizational complex", administrative and social (Party, labor union and Komsomol organizations) subsystems are distinguished whose functioning is mutually related and pursues common goals, while decision elements have a hierarchical structure of subordination.

This paper offers a graph model of systems for control

1/2

USSR

TYRYSHKIN, M. A., Kibernetika i vuz, vyp. 5, 1972, pp 65-72
of "organizational complexes" in which a set $A=(\phi, Z, P, O, R)$ is
put into correspondence with each decision element, where ϕ ,
 Z , P , O and R are sets of goals, jobs, rights, elements of
responsibility and resources respectively. In terms of the
constructed model the author formulates general problems of
synthesis and analysis of the investigated control systems.

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Entomology

USSR

UDC 595.7:591.542

TYSHCHENKO, V. P., GORYSHIN, N. I., and AZARYAN, A. G., Department of Entomology, Leningrad State University, and Department of Zoology, Yerevan State University

"Role of Circadian Processes in Insect Photoperiodism"

Moscow, Zhurnal Obshchey Biologii, No 1, 1972, pp 21-31

Abstract: Light and dark circadian processes participate in the photoperiodic reactions of insects. Their absolute durations are specific for each species and geographic population. The length of day and night is measured by mutual phasing of these processes under the influence of the photoperiod. This system permits only a qualitative estimate (shorter or longer than the inborn standard) and thus operates on the principle of a binary code. The photoperiodic measurement of time is attuned ecologically. Temperature and other environmental factors may exert a corrective influence on the operation of the system by adapting the mechanism of the photoperiodic reaction to the different seasons. The transmission of information from the oscillatory apparatus that judges the length of day and night to the endocrine system that controls insect development and diapause is apparently mediated by a photoperiodic counter that sums the number of short and long days throughout the period of larval development.

1/2

USSR

TYSHCHENKO, V. P., et al., Zhurnal Obshchey Biologii, No 1, 1972, pp 21-31

This counter, which plays an important role in the regulation of insect growth, cannot as yet be associated with any morphological structure.

2/2

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Entomology

USSR

UDC 595.729:577.49

AZARYAN, A. G., and TYSHCHENKO, V. P., Leningrad State University

"Nervous Regulation of the Circadian Rhythm of Motor Activity in the Cricket *Gryllus domesticus* L. (Orthoptera, Gryllidae)"

Leningrad, Entomologicheskoye Obozreniye, No 1, 1970, pp 72-82.

Abstract: The house cricket is most active at night. The circadian rhythm of its activity is approximately 26 hours with continuous light and 22 hours with constant darkness. Electrothermocautery of portions of the brain showed that the circadian rhythm disappeared only when one of the points of two definite zones in the protocerebrum (situated symmetrically to the right and left of the median line of the brain) was cauterized. A ligature applied between the head and thorax of the insect prevented the passage of hormones from the neurosecretory cells to the body, indicating that the circadian rhythm is regulated by neurons rather than hormones. The mechanism of synchronization of the cricket's behavioral rhythms seems to be the following. The rhythms are controlled by brain neurons attuned to the photoperiod. The light conditions synchronize these neurons. The circadian rhythms of the brain neurons are synchronite, in turn, the neurons of the thoracic

1/2

USSR

AZARYAN, A. G., et al., Leningrad, Entomologicheskoye Obozreniye, No 1,
1970, pp 72-82

ganglia, which control the insect's leg movements but are not directly
sensitive to the photoperiod.

TYSHEVICH, V. F.

TECHNICAL TRANSLATION

FSTC-HT-23-319-72

ENGLISH TITLE: Low Velocity Detonation of Cast Explosive Charges

FOREIGN TITLE: O Detonatsii s Maloy Skorost'yu Litykh Zaryadov Vy

AUTHOR: N. V. Badytsev, B. N. Kondrikov, V. F. Tyshovich

SOURCE: Vozynos Delo, 1970, No. 68-25, p 215-231

Translated for FSTC by Albert L. Peabody
LEO KANNER ASSOCIATES, INC.

NOTICE

COMPILED BY REMO330401E

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USSR

UDC:658.562:624.012.43

TYSHKEVICH, Yu. A., FEDORYAKO, I. I., Engineers, Kiev

"Testing the Water Permeability of Concrete in Thin-Walled Reinforced Concrete Structures"

Gidrotekhnika I Melioratsiya, No 8, 1970, Pages 49-52

Abstract: The existing method for testing water permeability of concrete (All-Union State Standard GOST 4800-59) allows permeability to be determined only in large, monolithic structures. This article suggests a method allowing the actual permeability of concrete to be established in thin-walled products 5-10 cm thick. The method uses the structures themselves or sample slabs of the same thickness, exposing them to one-sided water pressure for a fixed period of time. The apparatus used is diagrammed. Field tests were performed in 1968, indicating satisfactory operation of the equipment.

1/1

USSR

CHYSOVSKAYA, L. D., and LANEVSKAYA, L. A., State Scientific
Research Institute of Quartz Glass

"Spectral Determination of Impurities in Various Aluminum Oxides"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 11, 1970, pp 1347-
1348

Abstract: A direct spectral method is outlined for determining a number of impurities in aluminum hydroxide and in items made from it at high-temperature hardening. The method involves placing samples in carbon electrodes 5 mm deep and 4 mm in diameter and exciting them by a dc arc with $i = 14\text{a}$ for 120 sec. A mixture of oxides of the unknown elements with pure aluminammonium alums, which at subsequent hardening are transformed into aluminum oxide, are used as standards. A description is given of the preparation of standards containing 1% of every unknown element and others with decreasing content, as well as samples of aluminum hydroxide. The sample and standard spectra were photographed by the ISP-28 spectrograph with 12 micro slots. Diagrams in ΔS ; $\lg C$ coordinates were constructed for
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USSR

TYSOVSKAYA, L. D., and LANEVSKAYA, et al., Zavodskaya Laboratoriya, Vol 36, No 11, 1970, pp 1347-1348

analytical lines of various impurity elements. The sensitivity of the method is $1 \cdot 10^{-3}$ - $5 \cdot 10^{-5}$, and the mean square error is 15-20%.

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Acc. Nr.

AP0045162

Abstracting Service:
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91068d Effect of dispersed fillers on the temperature dependence of the specific heat of polystyrene. Tytyuchenko, V. S.; Dushchenko, V. P.; Solomko, V. P.; Galinskaya, V. I. (USSR). *Plast. Massy* 1970, (1), 51-2 (Russ). Block polystyrene (I) was filled with a finely divided kaolin (diam. $\sim 1-5 \mu$), 2 fractions of powd. quartz (II) (diam. $< 0.05 \text{ mm}$; $0.1 < \text{diam.} < 0.16 \text{ mm}$), and glass fibers (diam. $= 0.003 \text{ mm}$, length $= 1.0 \text{ mm}$), and its sp. heat (C_p) as a function of temp. was detd; thermal anal. at $20-140^\circ$. The C_p of the filled I increased with temp.; the rate of increase in the glass state region was $7 \times 10^{-4} \text{ cal/g-degree}$. Increased filler content brought about a decline in C_p , which was most pronounced in I-II compris. (when diam. $< 0.05 \text{ mm}$), presumably due to the lower heat capacity of the filler and a reaction with the binder.

CKJR

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REEL/FRAME

19780062

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1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROLYTE SHIFTS IN EXPERIMENTAL PYLORIC OCCLUSION -U-
AUTHOR--TYTYUK, G.A.
COUNTRY OF INFO--USSR
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CIRC ACCESSION NO--AP0126585

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PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR USED A TEFLON VASCULAR PROSTHESIS TO FULLY OCCLUDE THE PYLORUS IN 12 DOGS. THE ANIMALS LIVED AFTER OPERATION FOR 3-6 DAYS. FOUR DOGS DEVELOPED TYPICAL TONIC CRAMPS OF THE EXTREMITIES, MUSCULAR TREMORS WERE SEEN IN ALMOST ALL THE DOGS. BIOCHEMICAL BLOOD CHANGES CONSISTED IN A DECREASE OF POTASSIUM IN PLASMA AND ERYTHROCYTES AND OF SODIUM IN PLASMA; AT THE SAME TIME THE SODIUM TITER IN ERYTHROCYTES ROSE. CALCIUM AND MAGNESI IN PLASMA INCREASED. HYPCHLOREMIA, AZOTEMIA AND ALCALOSIS WERE SEEN IN ALL THE ANIMALS.

FACILITY: KHIRURGICHESKOYE OTDELENIYE PYATIGORSKOY GORODSKOY
BUL'NITSY 1 YA KAFEDRA KHIRURGII TSENTRAL'NOGO INSTITUTA.
FACILITY: USOVERSHENSTVOVANIYA VRACHEY, MOSKVA.

UNCLASSIFIED

USSR

UDC 547.241

T' YIARAY, R. S., RAM DZHAY SHUKLA, Technological Institute, Kharkourt Batler, Kanpur-2, India

"Organophosphorus Compounds. III. α -Diarylphosphinyl Substituted Benzyl Alcohols"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 997-1000

Abstract: Several α -diarylphosphinyl substituted benzyl alcohols have been synthesized by addition of bromomagnesium salt of diphenylphosphine oxide, chloromagnesium salt of dibenzylphosphine oxide, and bromomagnesium salt of di-1-naphtylphosphine oxide to substituted benzaldehydes and acetophenone. When three moles of α -naphtylmagnesium bromide are added to one mole of di-n-butylphosphonate followed by hydrolysis of the Grignard complex, the product is the oxide of di-1-naphtylphosphine. The reactions were carried out in anhydrous benzene at room temperature or with slight heating. The products were identified by IR and NMR spectroscopy.

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USSR

UDC 621.039.51

PONOMAREV, YE. G., TYUFYAKOV, N. D., SHTAN', A. S., and
YASKEVICH, V. S.

"Study of Formation of Neutron Beams From Isotope Neutron Sources"

Tr. VNII Radiats. Tekhn. (Works of All-Union Scientific Research
Institute for Radiation Equipment), No 5, 1970, pp 98-103 (from
Referativnyy Zhurnal-Yadernyye Reaktor, No 3, 1971, Abstract No
3.50.75

Translation: Experimental studies were performed into the influence of individual factors on beam characteristics. The measurements were performed in a water tank (1000 mm diameter, 1200 mm high) with two sources (Pu^{238} + Be and Cf^{252}), having different fast-neutron energy spectra. In order to reduce the perturbations of the neutron flux, the source and collimator holders were made of organic glass, while the collimators themselves were made of paper soaked in paraffin or of steel pipe with a wall thickness of 0.1 mm. Neutron flux measurements were performed using indium foils as well as a scintillation counter with an $\text{LiI}(\text{Eu})$ single crystal enriched to 90% Li^6 (crystal diameter 30 mm, thickness 4.4 mm). 4 figures, 8 biblio. refs.
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USSR

UDC 621.039.84

TYUFYAKOV, N. D., SHTAN', A. S., YASKEVICH, V. S., KOZLOV, A. G.,
and PAVLOVICH, V. YE.

"Spectral Characteristics of Neutron Sources Based on Pu²³⁸,"

Prikl. Yadern. Spektroskopiya (Applied Nuclear Spectroscopy --
collection of works), No 1, Moscow, Atomizdat Press 1970, pp 24-
27 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971,
Abstract No 3.50.138)

Translation: A single-crystal fast neutron scintillation spectro-
meter was used in combination with a 512-channel amplitude
analyzer to measure the spectra; discrimination of the γ back-
ground was based on the time of scintillation of a stilbene
crystal. The spectrometer was calibrated for the γ radiation of
of the isotopes Cs¹³⁷ and Zn⁶⁵. In subtracting the background,
the shadow cone from a mixture of paraffin and boron carbide was
used. During measurements, the neutron source and detector were
placed at a distance of about 2 m from the walls of the room.
The results of investigations confirmed the expediency of using
Pu²³⁸ to study isotope α n sources. The advantages of these

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TYUFYAKOV, N. D., et al., Prikl. Yadern. Spektroskopiya, No 1, Moscow, Atomizdat Press 1970, pp 24-27 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.138)

sources are felt primarily with a yield of 10^7 - 10^8 n/sec⁻² and more. It is assumed that the production of intermetallic compounds of Pu²³⁸ with the target material allows the yield of neutrons per unit mass of α radiator to be increased by several times in comparison with the sources studied. 2 figures, 5 biblio. refs.

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